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1988 EXCELLENCE IN SURFACE COAL MINING AND RECLAMATION AWARDS

United States Department of the Interior
Office of Surface Mining Reclamation and Enforcement

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UNITED STATES DEPARTMENT OF THE INTERIOR

Manuel Lujan Jr., *Secretary*

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

Harry M. Snyder, *Director*

COVER PHOTO: This reclaimed operation mined near the town of Epsom, Indiana, Using innovative mining and reclamation methods and special care in soil handling, The Kugler-Ivers and Black Beauty Coal Companies have restored the reclaimed land and established a unique cooperative spirit that promotes a positive relationship with the land owner and state and local officials.

1988 EXCELLENCE IN SURFACE COAL MINING AND RECLAMATION AWARDS

A report on the award-winning surface mining and reclamation operations under Title V of the Surface Mining Control and Reclamation Act of 1977

United States Department of the Interior
Office of Surface Mining Reclamation and Enforcement
Washington, D.C. 20240
September 1, 1989

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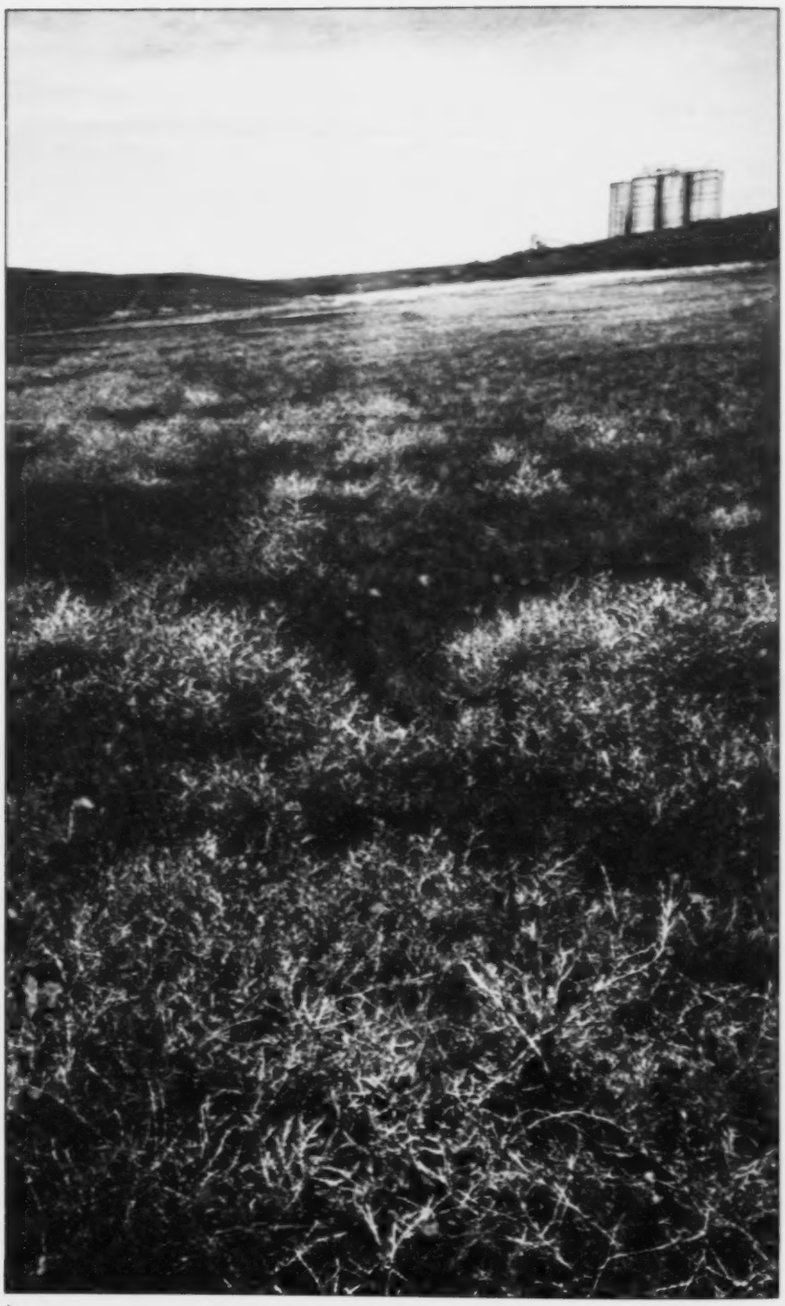
At the Kerr-McGee Coal Corporation's Jacobs Ranch Mine, cost effective reclamation practices have resulted in exemplary reclamation. Operating under semi-arid to arid climatic conditions, this mining operation serves as an excellent demonstration of the compatibility of surface coal mining with the environment in the Powder River Basin, Wyoming.



INTRODUCTION

In the United States, land reclamation has become a successful built-in component of surface coal mining. Environmentally responsible coal mining is the rule, not the exception. Yet the general public perception is considerably out of date. Despite industry's adherence to the reclamation ethic, public perceptions seem fixed on indelible images left over from the days before reclamation became commonplace, and on those relatively few places where the surface mining law is still occasionally flouted.

Ironically, the better a coal mine operator reclaims the land the less there is to see. Successfully reclaimed land quickly grows to resemble its natural surroundings, with little if anything about its appearance to suggest that it was ever mined. By contrast, the highly visible unreclaimed lands and active coal mining sites are the only sights that most people associate with surface mining.

To give well-earned public recognition to the people responsible for the nation's most outstanding achievements in environmentally sound surface mining and land reclamation, the Interior Department's Office of Surface Mining (OSM) initiated the annual Excellence in Surface Coal Mining and Reclamation Awards in 1986. That year nine companies received awards for exemplary performance under the Surface Mining Control and Reclamation Act (SMCRA). In 1987 seven awards were presented and for 1988 eight awards were presented to the winning coal mine operators by Secretary of the Interior Manuel Lujan Jr. at the National Coal Association's Annual Meeting in White Sulphur Springs, West Virginia.

The awards program was designed so State and federal regulatory organizations could give public recognition to America's top-quality coal mine operators for implementing SMCRA in an exemplary manner. The winners are operators who have developed innovative reclamation techniques or who have completed mining and reclamation operations that resulted in outstanding on-the-ground performance.

National public acknowledgement of these outstanding operators:

- Promotes their exemplary performance using standard reclamation practices;
- Recognizes the development and implementation of new reclamation technologies;
- Encourages wider use of the best reclamation technology through information exchange and technology transfer;
- Provides the public with a better understanding of mined-land reclamation achievements under SMCRA; and
- Encourages voluntary action by coal mine operators that goes beyond minimum compliance with regulatory requirements to protect the environment and manage coal resource recovery.

In 1988, in addition to presenting the Excellence in Surface Coal Mining and Reclamation Awards, OSM initiated the Director's Award, a special award given annually at the discretion of the Director, to one mining company in recognition of exemplary corporate commitment to the environment.

This report briefly describes the 1988 award-winning mining and reclamation operations. To aid those unfamiliar with the important terms commonly used to describe mining and reclamation conditions or techniques, those words appear in **boldface type** in the text the first time they are used and are explained in the glossary. Information about this program, the nomination process for next year's awards, and the availability of this report can be obtained from:

Public Affairs
Office of Surface Mining Reclamation and Enforcement
1951 Constitution Ave., NW
Washington, D.C. 20240
(202) 343-4953

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THE DIRECTOR'S AWARD

TEXAS UTILITIES MINING COMPANY

The Director's Award for Environmental Commitment acknowledges a corporation's exceptional concern for our natural resources -- a concern that has led to environmental reclamation and resource protection far exceeding anything required by law. The first Director's Award was presented this year to the Texas Utilities Mining Company.

Beginning in 1971 with one **lignite** mine near Fairfield, Texas, the Texas Utilities Mining Company has expanded to seven mines producing more than 29 million tons per year. Prior to the mining of lignite the utility was relying 100 percent on natural gas. Today lignite produces 44 percent of the electric energy the company generates. This conversion has saved its customers about $4 billion compared to what they would have paid if the company remained totally dependent on gas.

At Texas Utilities, respect for the environment has been part of the corporate ethic since the company removed its first ton of lignite from the Big Brown Mine in 1971. Recontouring and revegetating, including the development of numerous wetlands, ponds, and wildlife corridors, followed hand-in-hand the removal of the coal. All of this was being done years before any State or Federal law required it.

One of the hallmarks of the company's commitment to protecting natural resources is the Texas Utilities Environmental Research Center -- a program of direct financial assistance to graduate students studying the environmental effects of mining. The research center, now in its 19th year, has provided over $2 million in direct assistance to more than 70 graduate students. It includes a laboratory and residence facility at the Big Brown Mine near Fairfield, and provides special project assistance to the students in the form of construction of facilities for specific research projects, such as experimental sedimentation ponds, vegetation and drainage test areas, and groundwater monitoring systems.

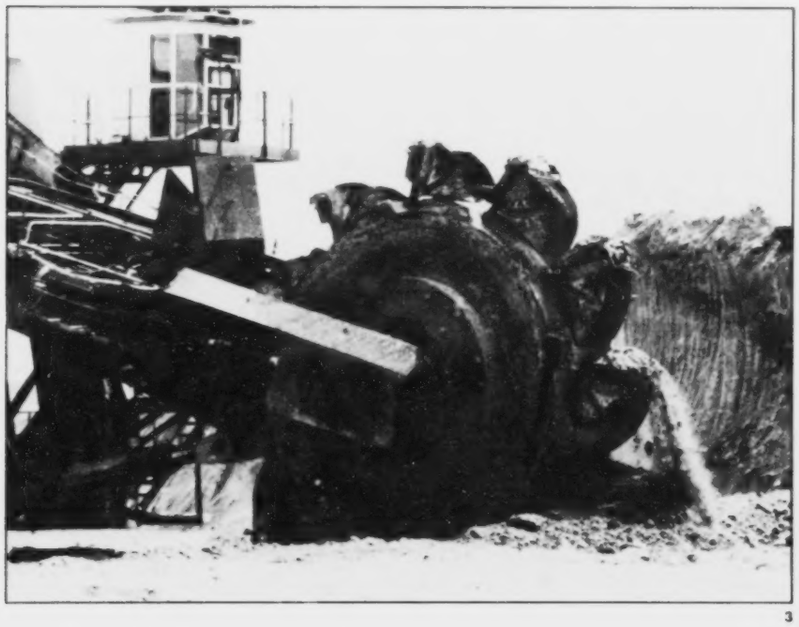
Despite the fact that Texas Utilities fully finances the research program, the company maintains a hands-off approach to the students' projects. The company has no review, editing, or publishing rights to the finished studies. Proposals are reviewed and students are selected by a steering committee composed of professors from Texas universities. The only stipulation is that projects must deal with the environmental effects of either coal mining or power plant operation.

The research program has had tangible benefits for Texas Utilities, as well as the students. Dissertations and other research products have provided the company with invaluable information and data on improved environmental reclamation techniques. One of the first studies found that mixed overburden at the Big Brown Mine was better for local vegetation than the natural topsoil. The study, which prompted Texas Utilities to abandon the practice of separately storing topsoil, has resulted in an estimated savings of 55 percent on the cost of each ton of coal mined -- much more than the total research program could ever cost.

On top of that, the improved soil quality produces more and healthier vegetation. Data compiled by the company for State and Federal regulators as part of its compliance responsibilities indicates that the tonnage of hay produced per acre on the reclaimed land is, in some cases, twice that produced on nearby unmined land. In addition, the protein quality of the hay grown on reclaimed land is measurably better. The experience of local cattlemen confirms these findings. Some ranchers claim to be raising two to three times as many head of cattle on the reclaimed land as they were on pre-mined land.

As impressive as it is, the research program is by no means the whole picture. The company's reforestation program has included the planting of over 3.5 million trees -- almost 500 thousand in 1989 alone. Deer graze on the reclaimed land while ducks and egrets nest in the waterways. The company's operations are a model of **contemporaneous reclamation**. As of April, 1989, Texas Utilities had mined a total of 25,444 acres at its seven mines. Of this total, 24,125 acres, or 95 percent, have been fully reclaimed -- an impressive record considering that Texas Utilities is mining at an annual rate of about 1500 acres.

Obviously, the commitment of Texas Utilities to the protection of the environment is revealed through more than just good reclamation. It's an ethic that has been built into the company's philosophy and reinforced year after year. This achievement took the dedication of many in the company to ensure that the commitment would be translated into tangible results. It is precisely this kind of dedication that the Director's Award for Environmental Commitment is designed to honor.



In a sweeping motion the bucket wheel excavator digs the overburden. This unique method of handling overburden material eliminates multiple handling and compaction common to other types of equipment.

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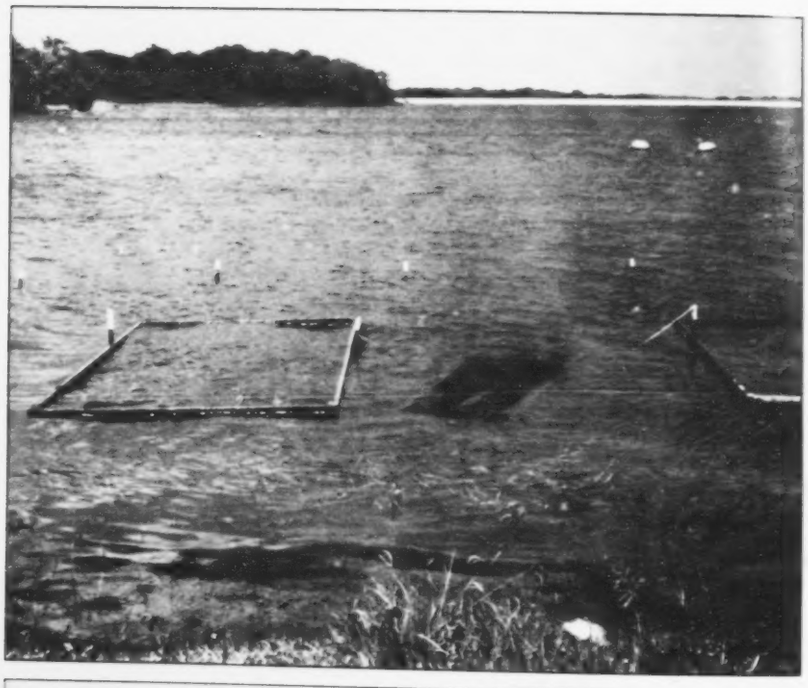
Water required for cooling at Texas Utilities generating plants has resulted in over 14,000 acres of man-made lakes. Here in the lake at the Big Brown Mine aquatic studies are conducted by students at the Environmental Research Center.



The lakes are also popular for boating, water skiing, fishing and many other recreational activities.

This sedimentation pond protects downstream water resources until the vegetation has become permanently established.

The Texas Utilities Mining Company, the first recipient of the Directors Award, received an engraved citation and special congratulations from Secretary of the Interior Manuel Lujan Jr. (right) at the National Coal Association annual meeting. John Janak, Executive Vice President (center), and Dick White, Director of Environmental Services (left), from the Texas Utilities Mining Company accepted the award.

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EXCELLENCE IN SURFACE COAL MINING AND RECLAMATION AWARDS

KERR-MCGEE COAL CORPORATION

Located in the Powder River Basin, about 50 miles south of Gillette, Wyoming, the Kerr-McGee Coal Corporation's Jacobs Ranch Mine received an award for exemplary reclamation under **arid to semi-arid** conditions. Jacobs Ranch is part of an integrated 15,000 acre mining and ranching operation, where over the 25 year life of the mine approximately 3,800 acres will be mined and reclaimed producing over 300 million tons of coal.

Since beginning mining operations in 1978 the Jacobs Ranch Mine has expanded to an annual production of over 14 million tons, making it the second largest mine in the United States. Using a **truck and shovel operation**, the company operates on approximately 150 acres each year to expose the 55 foot thick seam of sub-bituminous coal. Reclamation is contemporaneous and over 1400 acres have been successfully returned to their original grazing land use. This reclamation was integral with the mining from the beginning of the operation and the company has received partial **performance bond** release on approximately 935 acres. The severity of the climate and limited rainfall create difficult conditions for reclamation, so the management and staff at Jacobs Ranch have continually made extra efforts to ensure reclamation exceeds the requirements of SMCRA. They have developed and implemented one of the first standardized procedures for topsoil removal and replacement, taken significant steps to reestablish wildlife habitats, successfully completed alternative sediment control practices involving double mulching and incorporating the mulch into the soil, and accomplished reclamation that integrates a long term ranching and mining operation.

Wildlife habitats have been constructed by leaving small rock piles on the reclaimed range land. Small rodents are an important link in the natural food chain. Because of these rock dens, native birds and animals that prey on these animals have quickly become reestablished on the reclaimed land.

An active golden eagle nest found in the path of the mining operation was moved to a tree adjacent to the mining site. The care and effort taken were repaid when fledglings were raised in the nest immediately following the move. The successful relocation was a cooperative effort with the U.S. Fish and Wildlife Service.

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THE SABINE MINING COMPANY

A wholly-owned subsidiary of the North American Coal Corporation, The Sabine Mining Company operates on a 9000 acre site located a few miles south east of Longview, Texas. The Sabine Mining Company has won an award for innovative performance in water management and drainage control.

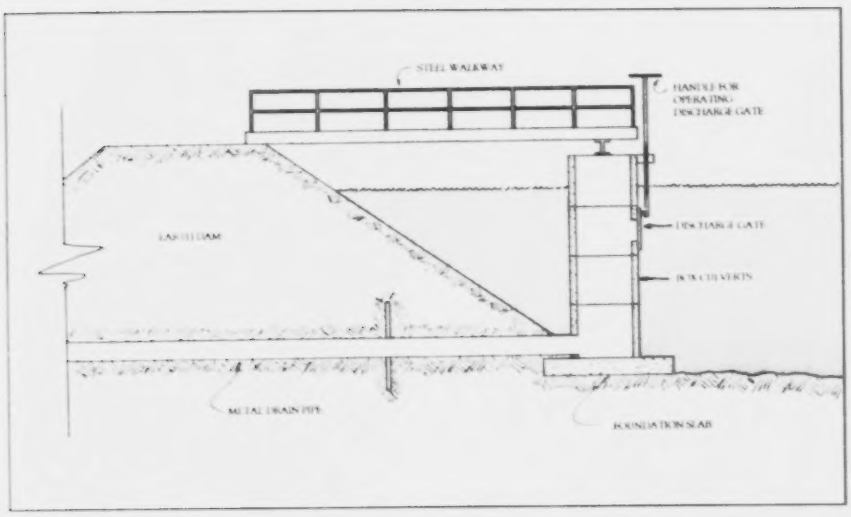
Mining of the 4 1/2 foot seam of lignite began in 1984. The mining operation is carried out by removing an average depth of 59 feet of overburden with two 77 yard **draglines**. Coal removal is accomplished using an **Easi-miner** continuous mining machine that loads 120 ton trucks with lignite in less than three minutes each. The annual production of 2.8 million tons is all used at a Southwestern Electric Power Company generating plant adjacent to the mining operation.

Outstanding reclamation achieved by the Sabine Mining Company is exemplified by their policy to "recreate a quality environment that meets or exceeds the rules and regulations." By striving to comply with the spirit of the law, they have created both a safe, productive work environment, and a degree of reclamation that reflects responsible stewardship of the land.

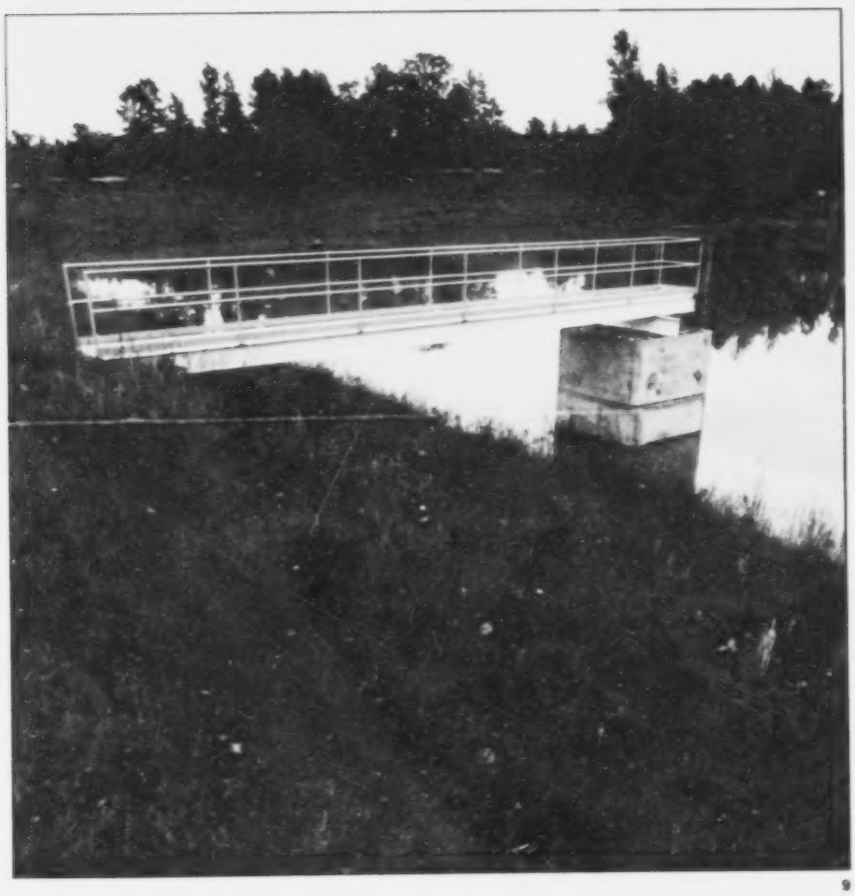
In an effort to shorten the construction time required to build "poured-in-place" concrete spillway structures, the Sabine engineers developed an innovative plan using pre-fabricated box culverts commonly used in the construction industry. Cost savings are substantial as the entire assembly process, completed in less than two shifts, replaces a form and concrete construction method that previously took several weeks. However, the shortened construction time has direct environmental benefits as well. In a geographic area of heavy rain storms the risk of erosion, sedimentation, and water pollution is greatly reduced due to:

- The minimum time that the construction area is subject to the potential for storm water runoff and exposure to heavy equipment travel.
- The minimal size of the construction area.
- Minimized total disturbance at the construction site due to erection of pre-fabricated modules.

Reclamation at the mine follows close behind the mining operation. Here a strip between the reclaimed area (left) and the active mining has been prepared for seeding.



Materials for the spillway include standard box culverts with factory modification to the bottom section containing the drain and the top section containing the opening for the sliding discharge gate. Construction is completed by placing the box culverts on a foundation slab using a track mounted backhoe. To assure a water tight seal between the boxes, an asphaltic pipe joint material is placed on the tongue and grove joints prior to placement of the next box. The sliding outlet gate apparatus is attached to the top section and the prefabricated steel walkway is placed on the structure after the dam embankment is brought up to the final grade.



Sedimentation load in the pond water is monitored and water is released from the pond by manually opening the discharge gate using the valve at the end of the walkway. The operating sedimentation pond shown here, equipped with the innovative drainage structure, is effective in protecting the environment and exemplifies the potential for development of innovative techniques in meeting SMCRA.

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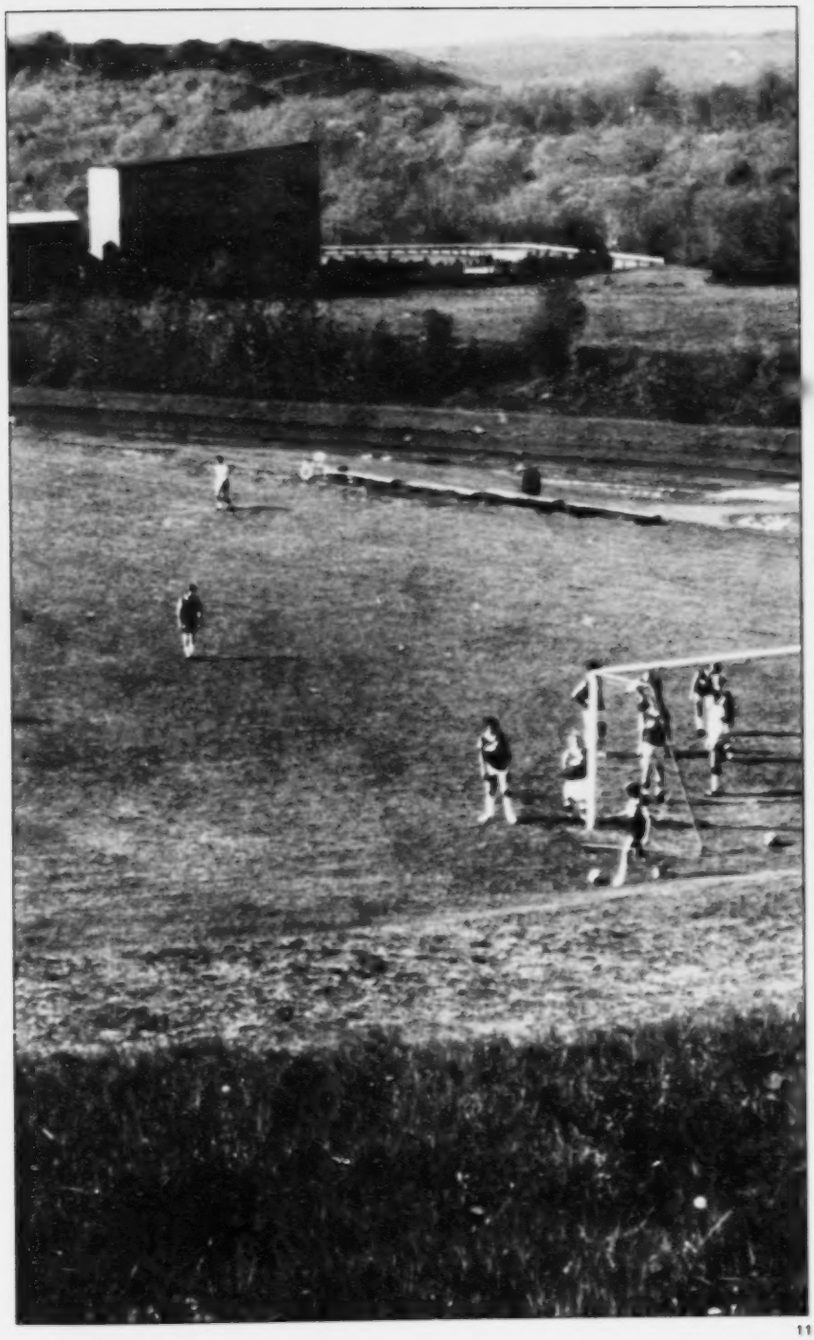
FUEL FABRICATORS, INC.

On a site that was once a surface coal mine operation, Fuel Fabricators has won an award for exemplary performance in the design and construction of a **preparation plant**.

The coal preparation plant, located near Bigler, Pennsylvania, processes 400 thousand tons of coal annually. Following construction of the plant, the land around the buildings was landscaped as a positive element to the surrounding community. Fuel Fabricators has constructed a noise and dust free production facility by installing covers on truck dumps and conveyors, and by using a wet coal processing method that draws water from holding ponds on the site. In addition, both the plant and surrounding area were developed in a successfully aesthetic manner and this operator has gone far beyond the requirement of SMCRA by constructing a soccer field for use by the public. This good neighbor approach by Fuel Fabricators has resulted in a positive benefit to the community and a national award for their outstanding achievement.



Environmentally sound active coal mining operations can provide both economic and cultural assets to the surrounding community. This regulation size soccer field is used by central Pennsylvania regional teams. The success of this dual land use -- coal preparation and recreation -- exemplifies the outstanding achievement by Fuel Fabricators.

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DRUMMOND COAL COMPANY

Long recognized as a progressive leader in the coal industry and winner of national honorable mention awards in 1986 and 1987, the Drummond Coal Company has won an award for exemplary reclamation achieved under sub-humid to humid conditions.

Located in Jasper, Alabama, Drummond produces 8.6 million tons per year in very difficult mining and reclamation conditions. Extracting a single seam of coal with an average 45:1 overburden to coal seam ratio requires movement of large quantities of overburden material. In addition, to uncover enough coal from the 5 foot seam requires large acreage of mining to make it economic.

Beginning under a interim program permit, the Mill Creek Mine has mined and reclaimed approximately 2000 acres. Throughout the process Drummond implemented a reclamation plan that made extensive use of terraces and diversions to control erosion and minimize sedimentation. Likewise, Drummond took active steps to assure rapid and effective revegetation. A 3000 foot segment of Little Mill Creek was permanently diverted and 65 acres of abandoned mine lands were remined and reclaimed, saving an estimated $325,000 in public Abandoned Mine Land funds. The success of this reclamation is even more outstanding in view of the extreme drought and flooding fluctuations in annual rainfall during reclamation.

A very successful and innovative activity achieved at the Mill Creek Mine was the production of Lespedeza seed. This legume is commonly planted in recently regraded highway cuts because of its excellent soil building characteristics and dense protective vegetative growth. Planted here in an experimental test to the long-term growth and establishment of the legume, a harvest is usually ready in agricultural quantities.

During the last harvest season 50,000 lbs of Lespedeza seed with a commercial value of over $100,000 was harvested from the reclaimed land. The seed is bagged in late summer and stored at the mine site for planting and sale the next year.

During the mining operation a 5000 foot section of county road was permanently rerouted at no cost to the public.

In 1985 test plots were established on areas reclaimed with redistributed topsoil and on areas where overburden material was used in lieu of topsoil. Growth of these Loblolly pines in the test plots is checked annually to quantify the success of the two methods.

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B & N COAL COMPANY

Mining an area near Dexter City, Ohio, that had been previously **contour mined**, the B & N Coal Company has received a national reclamation award for exemplary mining and reclamation while correcting major pre-existing environmental problems.

The B & N Coal Company, producing 400-500 thousand tons annually from this remining operation, is ensuring a maximum recovery of the coal reserve and at the same time correcting past environmental problems at no additional cost to the taxpayers. Achieving such noteworthy success under these harsh conditions is a special credit to B & N for identifying the environmental problems and taking steps to correct them during the mining and reclamation operation.

Early in the permitting process, when overburden and surface water samples showed extensive amounts of **toxic-forming materials** and unstable conditions that were prone to ground slippage, B & N recognized that extra care and thought would be needed to successfully mine and reclaim this previously mined site. Innovative early planning of the operation scheduled rapid reclamation to avoid a costly water treatment process. An extensive system of diversion ditches was designed to minimize the area of toxic material that surface water would run over. During mining, surface water was trapped and treated before it entered the sedimentation ponds, sump holes and silt fence were utilized to control sediment flow, and rock channels were used to prevent erosion.

Because the overburden at the site was toxic and contained large amounts of highly erosive sandstone, the ponds and diversion ditches were designed to remain as permanent structures. The reclaimed land will be used for grazing when the mining operation is completed. Here a section of the reclaimed site contains several diversions that are now an integral part of the drainage system and pasture landscape. Phase II performance bond release was achieved on this area less than one year after seeding, even with severe drought conditions.

Productivity of the land following reclamation is high. To rebuild the soil, five tons per acre of lime was added to the spoil, and five tons of lime and 700 lbs. of 9-23-30 fertilizer per acre to the topsoil. Producing a hay crop on this reclaimed land should not require further work other than normal agricultural practices. The high productivity and the major environmental improvement on this reclaimed land are a tribute to the outstanding achievement of this operator.

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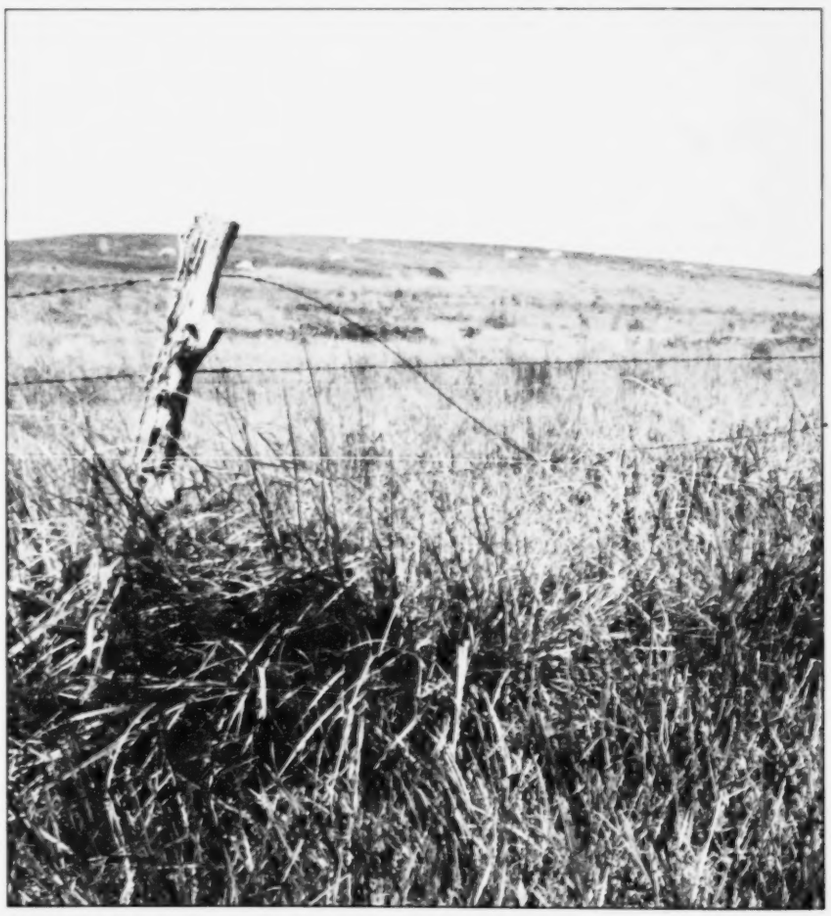
THE ROGERS GROUP AND BLACK BEAUTY COAL COMPANY

Operating a mining and reclamation operation on **prime farm land** in Plainville, Indiana, the Rogers Group Inc. and the Black Beauty Coal Company have won an award for exemplary reclamation achieved under sub-humid to humid conditions.

The Rogers Group, the contractor performing the mining and reclamation operation on the Arlen #1 mine, produces approximately 900,000 tons of coal per year. Since beginning the mine operation 10 years ago, the company has mined and reclaimed over 2000 acres, 90 percent of which is prime farm land that must meet special stringent topsoil reclamation performance standards. The Rogers Group/Black Beauty Coal Co. has consistently replaced the entire soil profile, regardless of whether the farmland was classified prime or non-prime, to a depth that exceeds the regulation requirements.

Innovative use of equipment facilitates contemporaneous reclamation and prevents soil compaction from tires and tracks of heavy earth moving machines. Working closely with local landowners, Rogers/Black Beauty has successfully made long term improvement to this agricultural landscape.

Prior to reclamation, this 50 acre area adjacent to the Arlen #1 mine contained of a very large abandoned gob pile and slurry pond with associated runoff problems. The site was the principal source of acid mine drainage polluting the local watershed. In a reclamation project shared jointly by the Rogers Group/Black Beauty Coal Co. and the land owner of the site, the area was graded and covered with approximately two feet of shale and unconsolidated overburden materials. The revegetated to pasture and hay species. Again we see here, productive farmland has been created once again.



Topsoil is removed by scrapers and placed in "windrow" piles across areas that have had subsoil replaced. These windrows are then leveled to the prescribed depth using small dozers.

Sub-soil is removed using an 11 yard hydraulic shovel in combination with end dump haul trucks. This sub-soil is immediately hauled back to the reclamation area, dumped, and graded into place by a dozer. Compaction, a serious problem in these valuable prime farmland soils, is limited by using this unique combination of equipment and direct haul back method.

When reclamation is completed the land is returned to the its original agricultural land use.

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THE CARTER MINING COMPANY

The Carter Mining Company, a division of Exxon Coal, has received an award for exemplary reclamation under arid to semi-arid conditions at its Caballo and Rawhide Mines near Gillette, Wyoming.

Together mining more than 20 million tons per year, the Caballo Mine is the seventh largest coal mine in the country and Rawhide is the tenth largest. Automation and computerization of environmental compliance and monitoring techniques at these mines represent cost savings to the mine operator and result in improved environmental compliance, monitoring techniques, and overall reclamation success. Technological advances at these mines include computerized surface water data loggers, an automated haul road sprinkler system, revegetation tracking software, a meteorological data collection and processing system, laser levels, and a solar powered water pump. Through continuing communication within the surface mining industry, The Carter Mining Company is encouraging the exchange of information on technological advances aimed at enhancing environmental protection and fulfilling applicable regulatory requirements.

Maintaining continual and accurate post mining surface grades during backfilling operations is critical to good reclamation. Using laser levels, The Carter Mining Company has reduced engineering support and increased the efficiency of the regrading operation. The transmitter in the foreground emits an invisible 360 degree rotating laser beam up to 3,000 feet for a constant grade reference plane within 1/16 inch. The laser receiver mounts on a mast secured to the dozer blade. As the blade is moved up or down to receive the laser signal, the operator views a cab-mounted visual display showing grade adjustment.

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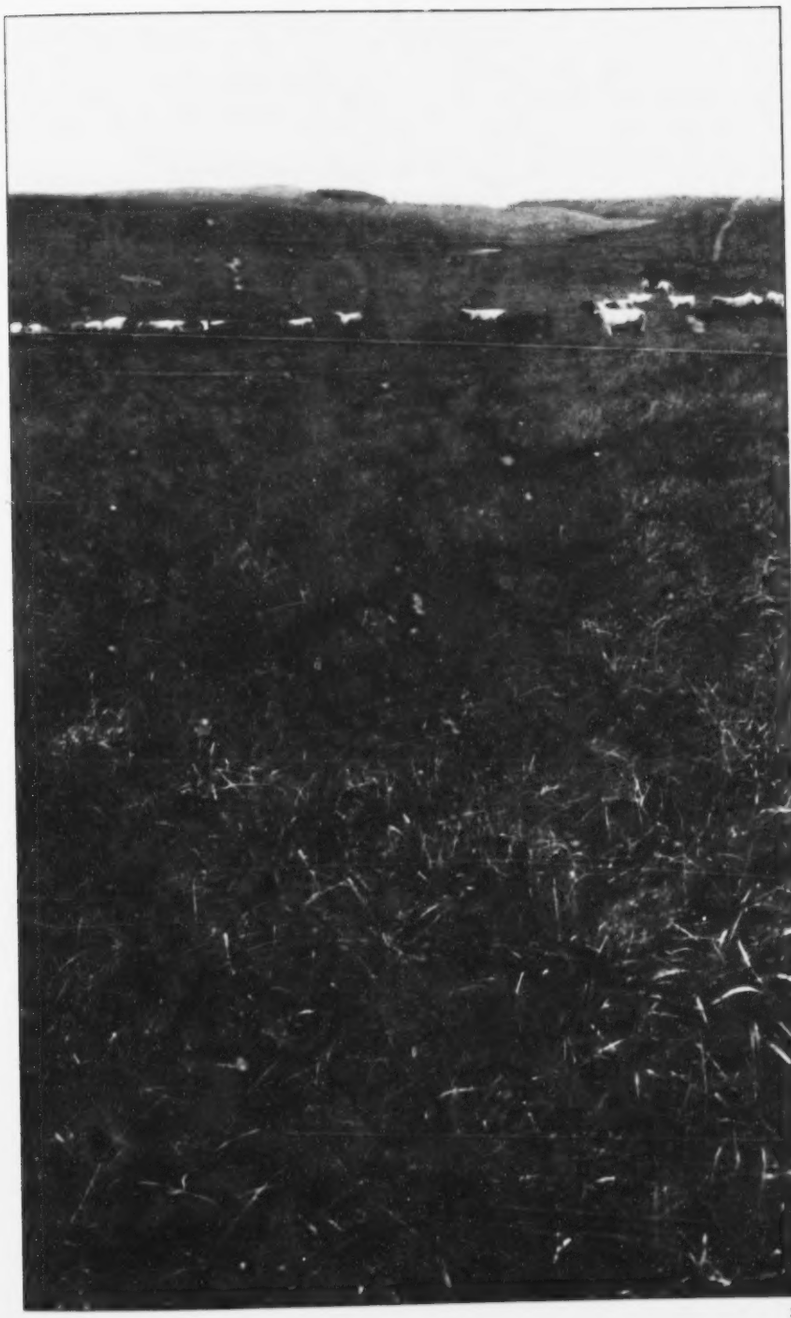
ALOE COAL COMPANY

Located adjacent to the expanding Pittsburgh, Pennsylvania, airport in a previously surface and underground mined area, the Aloe Coal Company has received an award for exemplary performance in correcting major pre-existing environmental problems.

A long range mining plan initiated in the early 1960's called for remining approximately 100 acres of abandoned surface mine land and **daylighting** over 400 acres of abandoned underground mine lands. The significance of this remining operation can be seen in the reduction of acid and iron flowing into the Raccoon Creek watershed. Field studies conducted in 1974, prior to remining, showed untreated discharges of 27,330 pounds of acid per day and 8,996 pounds of iron per day. The daylighting operation resulted in a reduction of 26,652 lbs of acid (98 percent) and 8,706 lbs of iron (97 percent) per day. Prior to the Aloe daylighting operation, the Commonwealth of Pennsylvania estimated permanent treatment facilities and sealing of deep mine openings would cost $5.5 million in public reclamation funds. This public cost savings and the dramatic improvement to Raccoon Creek make this an outstanding example of mining coal and eliminating existing environmental problems.

After removing the overburden above the abandoned underground mine, a backhoe is used to remove columns of residual coal left in the mine. Exposing the abandoned underground mining in this manner (daylighting) facilitates complete recovery of the coal reserve and eliminates sources of acid mine drainage at no expense to the taxpayers.



Reclamation closely follows the remining operation. Here sedimentation and acid mine drainage have been eliminated, the site is no longer covered with acres of unvegetated abandoned mine refuse, and the rivers downstream from the mine once again contain game fish. Cattle grazing here are part of the 400 head that this reclaimed mining operation currently supports.

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GLOSSARY

Acid mine drainage: Any water having a pH less than 6.0 draining from coal mines. Water is often orange in color because of presence of oxidized iron. If a sufficient quantity of acid mine drainage reaches a clean stream system, biological damage results.

Arid to Semi-arid lands: The area, generally west of the 100th meridian, where water use by native vegetation equals or exceeds that supplied by natural precipitation, and where rainfall is insufficient to support intensive agriculture. Annual precipitation is normally 20 inches or less.

Contemporaneous reclamation: Restoration of mined land as soon as practical after mining.

Contour mining: A mining method commonly used in eastern mountainous topography where coal is removed in a narrow strip around the hillside. The extent of the cut into the hillside is determined by the depth of overburden at the highwall compared with the thickness of the coal seam.

Daylighting: A term used to describe the surface mining procedure for exposing abandoned underground coal mine workings to remove all of the remaining coal underlying the surface. Daylighting is followed by land reclamation.

Dragline: An excavating machine, usually used in large flat areas, that loads a hugh bucket (holding up to 220 cubic years of material) with overburden by dragging the bucket toward the machine, then hoists it with a boom up to 350 feet long, allowing the machine to excavate wide benches by depositing the overburden hundreds of feet away from the highwall.

Fast-miner: A self propelled machine that operates on the exposed bed of coal and removes a continuous layer of coal the width of the machine and loads it directly on a conveyer belt and into a truck. This procedure contrasts with traditional coal removal which is accomplished using front end loaders and power shovels.

Gob pile: A term describing a pile or heap of underground mine refuse containing coal mixed with other materials that were not marketable. Gob piles usually contain refuse products from the cleaning of coal from underground mines.

Legumes: A group of plants valuable for forage and used in reclamation plantings due to their erosion control and nitrogen-fixing soil building characteristics. Commonly used reclamation legumes include clover, alfalfa, Lespedeza, and vetch.

Lignite: A brownish-black coal which has developed further than peat, but not so far as bituminous coal. Characteristically it has a high inherent moisture content and less than 8300 British Thermal Units (bituminous coal contains 12,000-15,000 BTU's).

Performance bond: A bond, required by each operator prior to receiving a mining permit, sufficient to cover the cost of reclaiming the site in the event the operator does not complete the reclamation. Bond release is not made until revegetation has been determined to be successful (after 5 years in the East and Midwest, and after 10 years in the arid West). Partial release can be made as phases of reclamation are complete as follows:

Phase I: Backfilling spoil material, regrading (which may include topsoil replacement), and drainage control completed in accordance with the approved reclamation plan.

Phase II: Revegetation established on regraded mine lands.

Phase III: All surface coal mining and reclamation activities are successfully completed.

Preparation plant: A facility at which coal is cleaned or processed before being shipped or used.

Prime farmland: A special category of highly productive cropland that is recognized and described by the U.S. Department of Agriculture's Soil Conservation Service (SCS), and receives special protection under SMCRA.

Slurry Pond: A settling basin for coal and rock fines suspended in the water discharging from a coal preparation plant.

Toxic-forming material: Overburden which if exposed to air and water is likely to produce chemical or physical conditions in soils or water that damage plants and animals.

Truck and shovel operation: A method of removing overburden using power shovels to load the overburden material into large trucks where it is then dumped into the mined out area. This is a common method of overburden removal in steep terrain and in the West where very thick seams prevent efficient use of draglines.

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PREVIOUS AWARDS

1986

AWARD RECIPIENTS

Buffalo Coal Company, mines in Allegany and Garrett Counties, Maryland.
Falkirk Mining Company, Falkirk Mine in McLean County, North Dakota.
Nerco Coal Corporation, Jim Bridger Mine near Rock Springs, Wyoming.
North American Coal Corporation, Powhatan Reclamation Project in Belmont County, Ohio.

HONORABLE MENTION

Drummond Coal Company, Arkadelphia Mine, Cullman County, Alabama.
Freeman United Coal Mining Company, Industry Mine near Canton, Illinois.
Hobet Mining Company, West Virginia operations.
K & R Coal Company, Ryan Mine, Oklahoma.
River-Hill Coal Company, West Keating Township, Pennsylvania.

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AWARD RECIPIENTS

Western Fuels-Utah Inc., Deserado Mine in Rio Blanco County, Colorado.
Arch of Illinois Inc., Captain Mine in Perry County, Illinois.
R & F Coal Company, Harrison County Home Mine near Cadiz, Ohio.
Peabody Coal Company, Sinclair and Homestead Mines in Ohio County, Kentucky.
John Duckworth Coal Company, mines in Allegany and Garrett Counties, Maryland.

HONORABLE MENTION

P-V Mining Company Inc., DuBois County Operations, Indiana.
Island Creek Coal Company, Gayley Division Operations, Nicholas County, West Virginia.
Drummond Coal Company, Segco No. 1 Underground Mine, Walker County, Alabama.

PHOTO CREDITS

Cover, and pages ii, iv, 6, 7, 8, 9, 12 (bottom), 13, 16, 17, 18, 19, 20, and 21, Chuck Meyers, OSM.
Pages 2, 3, 4, and 5 (top), Texas Utilities Mining Company.
Page 5 (bottom), National Coal Association.
Pages 10 and 11, Jim Boyer, OSM.
Page 12 (top), Drummond Coal Company.
Pages 14 and 15, B & N Coal Company.

OTHER OSM PUBLICATIONS AND VIDEO TAPES

Surface Coal Mining Reclamation: 10 Years of Progress, 1977-1987. A report on the protection of the Nation's land and water resources under Title V of the Surface Mining Control and Reclamation Act of 1977. (Available from: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402; Stock No. 024-004-02189-6; $4.25.)

A Page In Time. A video tape describing reclamation progress under SMCRA (VHS copies available on loan).

1988 Excellence in Surface Coal Mining and Reclamation Awards Video. A video tape describing the 1988 winning reclamation operations (VHS copies available on loan).

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